SPECIFICATION AMENDMENTS

In the Specification:

Please accept the following replacement paragraph of the specification, marked to show changes:

[00012] A similar configuration and effect is shown in Figure 2. Figure 2 shows a second work station 21 having a second work station envelope 23, second work station footprint 25, defined along the direction of travel 13 by the intersection of second work station forward boundary 27 with the conveyor footprint 12 and by the intersection of the second work station rear boundary 29 with the conveyor footprint 12. A second assembly tool 60 is shown having ~~of~~ a power and control unit 61 connected to an end-use device 63 by a flexible power transfer section 65. The point of attachment 56 of these flexible power transfer sections 65 is a pivot point 57. At maximum extension the flexible power transfer section 65 of assembly tool 60 limits travel of the end-use device 63 to an assembly tool travel envelope 51.

[00017] One such conveyor monitoring and control system and method is the Error Proofing System used ~~by~~ in certain vehicle assembly lines. The Error Proofing System is an integrated conveyor monitoring and control system in which activation of the assembly tool 40 is interlocked such that with the system only allows activation of the assembly tool 40 when activation parameters are met, herein termed system authorized activation. The Error Proofing System also limits the number of activations of the assembly tool 40 to the number necessary to perform the designated assembly operation. The Error Proofing System will stop

the assembly line if the required number of operations for an authorized activation of an assembly tool 40 are not sensed as having been performed prior to the system determining that the in-station work-piece 71 is exiting a work station 20. This determination may be based on several factors including elapsed time in the work station 20 and / or sensed movement of the in-station work-piece 71.

[00020] When an in-station work-piece 71 is determined to have reached the work station forward electronic boundary 17, work-piece 70 is now designated as in-station work-piece 71. Data for the work-piece 71 is now associated with data for the work station 20. The Error Proofing System will now register the activation of the assembly tool 40. Most frequently, the work station forward electronic boundary 17 is equivalent to the work station forward boundary 26, but it is not necessary that the two overlap. The ~~should operator~~ operator should then position the assembly tool 40 upon in station point-of-use 71 and perform the designated assembly operation before the in-station work-piece 71 is determined to have reached the work station rear electronic boundary 18.

[00021] When the in-station work-piece 71 is determined to have passed the work station rear electronic boundary 18, the Error Proofing System will no longer register the activation of the assembly tool 40. Authorized activation of the assembly tool 40 may also be inhibited. Most frequently, the work station rear electronic boundary 18 is equivalent to the work station rear boundary ~~26~~ 28, but it is not necessary that the two coincide. Generally, the work station rear electronic

boundary 18 is also equivalent to a second fixed stopping point 14, but, again, it is not necessary that the two coincide.

[00022] When the in-station work-piece 71 is determined to have reached the second fixed stopping point 14, the Error Proofing System will allow the in-station work-piece 71 to exit the work station 20 if recorded parameters indicate that authorized activation of the assembly tool 40 occurred while the work-piece 71 was within the electronically enabled work station envelope ~~99~~. Otherwise, a stop interlock will stop the conveyor system 11 until the error is corrected.

[00032] A preferred method of the present invention, herein termed Error Proof Scrolling, is followed to reposition the pivot point 53 of the assembly tool 40 and to limit the tool travel of the assembly tool 40 in order to provide an assembly tool reduced travel envelope ~~81~~ 82 that only overlaps the position of the point-of-use 78 of the in-station work-piece 71 and does not overlap the position of the point-of-use 79 of any out-of-station work-piece 72.

[00066] Referring now to Figures 5 thru 9, the clamping assembly 90 of Figure 4 is shown. Clamp 91 includes a first block 92 having a first block mating surface 93 and a second block 94 having a second block mating surface 95. Clamp 91 includes a conduit retaining means 120 for securely holding the flexible power conduit 46. In this embodiment the conduit retaining means 120 includes a block groove 122 disposed in second block mating surface 95. Flexible power conduit 46 is shown disposed within the block groove 122. When the clamp 91 is assembled,

block groove 122 and first block mating surface ~~92~~ 93 form block channel 124, which is sized to securely hold flexible power conduit 46.

[00077] Referring now to Figures 1, 13 and 15, an alternate method of the present invention is illustrated. A linearly configured portion of a of conveyor system 11 having work station 20 is shown. Further, the conveyor system 11 lacks an integrated conveyor monitoring and control system. The work station 20 has a work station envelope 22 defined along the direction of travel 13 along a conveyor footprint 12. The work station 20 sequentially receives in-station work-pieces 71 for designated assembly operations within work station envelope 22 and out-of-station work-pieces 72 are queued upstream and outside of work station envelope 22. Work station 20 has at least one associated assembly tool 40 having a pivot point 53 located adjacent to the conveyor footprint 12 at a standard distance from the centerline thereof. (A standard distance being selectable from conventional distances of assembly tool offset for the configuration of the conveyor system.) The assembly tool 40 also has a flexible power transfer conduit 46. ~~T~~ The ~~the~~ assembly tool travel envelope 50 overlaps the position of the points-of-use 75 on in-station work-pieces 71 and also overlaps the position of the points-of-use 75 on at least one out-of-station work-piece 72. Work station 20 is defined by work station forward boundary 26 and work station rear boundary 28.